

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 21 January 2004. Responsive to the rejections made in the Official Action, Claims 1 and 2 have been amended to clarify the combination of elements which form the invention of the subject patent application and Claim 4 has been cancelled by this Amendment and Claims 5 and 6 have been amended to be consistent with amended Claim 1.

In the Official Action, the Examiner rejected Claims 1 – 6 under 35 U.S.C. § 103, as being unpatentable over Ketchpel, U. S. Patent No. 5,396,406, in view of Zou et al., U.S. Patent No. 6,550,942. The Examiner stated that the Ketchpel reference disclosed a flat lamp structure comprising a reflecting plate having a reflective coating formed thereon, UV light source, a transparent substrate with macromolecular polymer. The Examiner further stated that the UV light source was arranged in the reflecting plate, and the transparent substrate covered the reflecting plate, such that the UV light emitted by the UV light source was reflected by the reflecting plate to excite the fluorescent powder to radiate visible light. Although the reference lacked disclosure of a plurality of UV light sources, the Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide additional light sources in order to increase the intensity of light. Still further, the Examiner admitted that the Ketchpel reference failed to disclose the type of reflective material provided as the

reflective layer, however, the Examiner referred to the Zou reference as disclosing a reflective layer for a UV light source formed of a macromolecular polymer mixed with titanium dioxide. The Examiner then concluded it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the flat lamp disclosed by Ketchpel to have multiple light sources and a reflective layer formed of a polymer mixed with titanium dioxide.

Before discussing the references relied upon by the Examiner, it is believed beneficial to first briefly review the structure of the invention of the subject Patent Application, as now claimed. The invention of the subject Patent Application is directed to a high-brightness flat lamp structure. The structure includes a reflecting plate having a cavity formed therein. The cavity has a longitudinally extended bottom wall bounded by a plurality of sidewalls with titanium dioxide and a macromolecular polymer coated thereon. The flat lamp structure further includes a plurality of UV light sources disposed in the cavity in side-by-side longitudinally spaced relationship. A transparent substrate having inner and outer walls is provided where the inner wall overlays the reflecting plate and the transparent substrate forms a closure for the cavity. The transparent substrate is coated with a macromolecular polymer and fluorescent powder. By that arrangement, the UV light emitted by the UV light sources is reflected by the reflecting plate for exciting the fluorescent powder to radiate high-brightness visible light from the outer wall of the transparent substrate.

In contradistinction, the Ketchpel reference is directed to a high efficiency illumination system for display devices. The illumination system includes a fluorescent lamp 26 disposed within a cavity defined by an arcuate reflector 28. The opening to the cavity is closed by a light distributor plate 24 disposed in juxtaposition therewith. The UV light emitted from the fluorescent lamp and reflected from elliptical reflector 28 is transmitted into the distributor plate 24, through one end thereof and then by means of internal reflection, transmitted upwardly to the outer wall of the light distributor plate to impinge upon the phosphor stripes 30, 32 and 34 that are disposed thereon, Col. 4, lines 2 – 4 and lines 25 - 29.

Thus, the reference discloses an edge illuminated display, rather than a flat lamp structure. Further, by virtue of the elliptical contour of reflector 28, one would not likely position a plurality of UV light sources disposed in the cavity in side-by-side longitudinally spaced relationship, as now claimed for the invention of the subject Patent Application. There is no suggestion or motivation for such an arrangement of lamp. Further, the reference fails to disclose or suggest a transparent substrate having opposing inner and outer walls, the inner wall being disposed in overlaying relationship with the reflecting plate, the transparent substrate forming a closure for the cavity, and visible light being radiated from the outer wall. As there was no disclosure in Ketchpel as to how one would orient a plurality of UV light sources and mere duplication of UV light sources would not

lead to the structure of the invention of the subject Patent Application, other than by accident, a prima facie case for obviousness of the light source structure of the claimed invention has not been made.

The Zou et al. reference does not overcome the deficiencies of Ketchpel. The Zou et al reference is directed to a linear illumination source and system, that, like Ketchpel, is intended to provide edge lighting. The reflector is arcuate shaped with a fluorescent lamp centrally disposed within the arcuate cavity. Here again, there is no disclosure as to how one would arrange a plurality of sources within the cavity, nor any disclosure of a transparent substrate having opposing inner and outer walls, the inner wall being disposed in overlaying relationship with the reflecting plate, the transparent substrate forming a closure for the cavity.

Thus, the combination of Ketchpel and Zou et al. fail to disclose or suggest a reflecting plate having a cavity therein, wherein the cavity has a longitudinally extended bottom wall bounded by a plurality of sidewalls, and a plurality of UV light sources disposed in the cavity in side-by-side longitudinally spaced relationship, and a transparent substrate having opposing inner and outer walls, the inner wall being disposed in overlaying relationship with the reflecting plate, the transparent substrate forming a closure for the cavity. Thus, as the combination of Ketchpel and Zou et al. fail to disclose or suggest the combination of elements which form the invention of the subject Patent Application, as now claimed, it cannot anticipate that invention.

In the Official Action, the Examiner rejected Claims 1 through 7 under 35 U.S.C. § 103, as being unpatentable over Cekic et al., U. S. Patent No. 6,505,948, in view of Zou et al., and further in view of Juliano, U. S. Patent No. 3,787,238.

It is respectfully submitted that the Cekic et al. reference is directed to a method of modifying the spectral distribution of high-intensity ultraviolet lamps. In the embodiment of Fig. 6, the reference discloses a high-intensity bulb 106 disposed within a cavity formed by an arcuit reflector 110. Spaced from the reflector is the window 116 having a phosphor 112 coated on both sides thereof.

Thus, the Cekic et al. reference fails to disclose a reflecting plate with a cavity having a longitudinally extended bottom wall bounded by a plurality of sidewalls, with a plurality of UV light sources disposed in the cavity in side-by-side longitudinally spaced relationship, and a transparent substrate having opposing inner and outer walls, the inner wall being disposed in overlaying relationship with the reflecting plate, the transparent substrate forming a closure for the cavity.

The Zou et al. reference fails to overcome the deficiencies of Cekic et al. As previously discussed, the Zou et al. reference neither discloses the cavity structure of the reflecting plate of the invention of the subject Patent Application, nor the arrangement of UV light sources in the cavity in side-by-side longitudinally spaced relationship, and does not provide for the transparent substrate having an inner wall disposed in overlaying relationship with respect to

the reflecting plate and forming a closure for the cavity.

The Juliano reference fails to overcome the deficiencies of Cekic et al. combined with Zou et al. The Juliano reference is directed to a fluorescent screen having a layer of fluorescent particles over which a hard film of polymer is disposed.

Thus, the combination of Cekic et al. Zou et al. and Juliano fail to disclose or suggest a reflecting plate having a cavity with a longitudinally extended bottom wall bounded by a plurality of sidewalls, a plurality of UV light sources disposed in the cavity in side-by-side longitudinally spaced relationship, and a transparent substrate having opposing inner and outer walls, the inner wall being disposed in overlaying relationship with the reflecting plate, the transparent substrate forming a closure for the cavity, as now claimed. Thus, it is now believed that Claim 1 is patentably distinct. Further, as the remaining dependent Claims are dependent upon what is now believed to be a patentably distinct base claim, they are also patentably distinct for at least the same reasons.

It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

For ROSENBERG, KLEIN & LEE

A handwritten signature in cursive script, appearing to read "David I. Klein".

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